Obesity:
The Bariatric Challenge

Jeffrey Rosen, MD, FACS
Obesity Defined

- Condition of an excessive proportion of adipose tissue to total body weight
- Prevalence doubled over last 20 years and still increasing
- 60% of all adults are considered to be overweight
- Worldwide estimates 1.1 billion overweight people with 250 million are classified as obese
- Body mass index (BMI) used as a measurement

• Percentage of obese men doubled
• Percentage of obese women increased by 50%
• More than 31% of adults in the US are obese
• More than 64% of Americans are overweight
Obesity Trends* Among U.S. Adults
BRFSS, 1990, 1995, 2005
(*BMI ≥30, or about 30 lbs overweight for 5’4” person)

1990

1995

2005

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<th>Region</th>
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<td>No Data</td>
<td>&lt;10%</td>
<td>10%–14%</td>
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<td>20%–24%</td>
<td>25%–29%</td>
<td>≥30%</td>
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Definition – Morbid Obesity

• **100 lb > Ideal body weight**

• **Body Mass Index (BMI) > 35**

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<td>325</td>
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### Definition of Obesity and Morbid Obesity

<table>
<thead>
<tr>
<th></th>
<th>Overweight</th>
<th>General Obesity</th>
<th>Morbid Obesity</th>
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<tbody>
<tr>
<td><strong>BMI (Body Mass Index)</strong></td>
<td>25-30</td>
<td>30-35</td>
<td>&gt; 35</td>
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<tr>
<td><strong>Related Medical Problems</strong></td>
<td>+</td>
<td>++</td>
<td>+++</td>
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<tr>
<td><strong>Treatment</strong></td>
<td>Surgery is not an option</td>
<td>Surgery is an option for select patients</td>
<td>Surgery is the only option that works for the vast majority</td>
</tr>
</tbody>
</table>
U.S. Health Problem

- "#1 Health problem in the US"

- 5.4% morbidly obese
  - (15 million)

- 23% adults + 20% children
  - Obese
  - (59 million)

- 60% overweight
  - (160 million)
Cause of Morbid Obesity

Multiple Issues

• Primary Cause -
  genetic (inherited)
  • Hormones that lead to hunger
  • Absorption of calories in the small intestine
Co-morbidities

- DEFINITION
- PROBLEM
Co-morbidities

- Diabetes
- High blood pressure
- Elevated cholesterol
- Heart disease
- Asthma
- Sleep apnea
- Gallstones
- Hepatitis
- Gastroesophageal reflux
  - “Heartburn”
- Skin infections and ulcers
- Infertility and menstrual abnormalities
- Pregnancy problems
- Urinary leakage
- Depression
- Self esteem issues
- Dementia
- Gout
- Immobility
- Joint pain
  - Back & Hips
  - Knees & Ankles
## Co-morbidities Cancer

<table>
<thead>
<tr>
<th>Type of Cancer</th>
<th>Increased Risk In Obese vs Non-obese</th>
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<tbody>
<tr>
<td>Gallbladder</td>
<td>500%</td>
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<tr>
<td>Endometrium (Uterine)</td>
<td>500%</td>
</tr>
<tr>
<td>Breast (Post-menopausal)</td>
<td>50%</td>
</tr>
<tr>
<td>Colon</td>
<td>40%</td>
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<tr>
<td>Prostate</td>
<td>Yes - % unknown</td>
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<tr>
<td>Cervix</td>
<td>Yes - % unknown</td>
</tr>
<tr>
<td>Ovary</td>
<td>Yes - % unknown</td>
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<tr>
<td>Kidney</td>
<td>Probable</td>
</tr>
<tr>
<td>Pancreas</td>
<td>Probable</td>
</tr>
<tr>
<td>Rectum</td>
<td>Probable</td>
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<tr>
<td>Esophagus (eating tube)</td>
<td>Probable</td>
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<tr>
<td>Liver</td>
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</table>
## Co-morbidities

### Activities of Daily Living

<table>
<thead>
<tr>
<th>UNABLE TO</th>
</tr>
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<tbody>
<tr>
<td>Cross legs</td>
</tr>
<tr>
<td>Buckle normal seat belt</td>
</tr>
<tr>
<td>Fit in booth at restaurant</td>
</tr>
<tr>
<td>Fit in theatre, bus &amp; airplane seat</td>
</tr>
<tr>
<td>Urinate accurately (men)</td>
</tr>
<tr>
<td>Walk down stairs unless backwards</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WILL NOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undress in front of spouse</td>
</tr>
<tr>
<td>Sleep in room with significant other due to snoring</td>
</tr>
<tr>
<td>Wear short sleeves in summer</td>
</tr>
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</table>
Normal Anatomy
Stomach & Intestines

*Picture provided by AllReferHealth.com
Surgical Treatment  Morbid Obesity

GASTRIC BYPASS

• Two weight loss components
  • Reduces the size of the stomach
  • Reduces calorie absorption

*Picture provided by AllReferHealth.com
Surgery
Gastric Bypass
Surgery
Gastric Bypass
Surgical Treatment
Morbid Obesity

Lap-BAND®

- One weight loss component
  - Reduces the size of the stomach

*Picture provided by AllReferHealth.com*
Surgery
Lap-BAND®
Surgery Lap-BAND®
Open vs Laparoscopic Surgery

Open

Laparoscopic
Pathophysiology

- High caloric intake By mouth and/or absorption
- Low level of physical activity
- Low level of metabolism
- High insulin sensitivity?
- Lack of anti-obesity hormone?
Higher risk

- Heart disease
- Diabetes
- Sleep Apnea
- Hypertension
- Stroke

- Osteoarthritis
- Kidney disease/stones
- Psychiatric issues
  - Impaired body image
  - Depression
  - Loss of self esteem
Heart Disease

- Overall increase in both morbidity and mortality
  - Coronary artery disease
  - Atherosclerosis and hyperlipidemia
  - Hypertension
  - CHF
  - Sudden cardiac death
  - Peripheral vascular disease
- As weight increases risks get higher
Pulmonary Problems

- Decrease in lung volumes
- Increased work of breathing
  - Higher airway resistance
  - Higher chest wall
  - Decreased respiratory system compliance
  - Flattened diaphragms
  - Altered lung volumes
  - Increased energy cost of breathing
Pulmonary Problems

- Pulmonary hypertension secondary to:
  - Hypoxia
  - Pulmonary vasoconstriction
  - Depressed heart function
Obesity-hypoventilation syndrome: Pickwickian syndrome

- 5% -- 10% of morbidly obese
- Left and right sided heart failure common
- Obstructive sleep apnea
- Hypoxia
- Hypercapnia
- Marked daytime somnolence
- Chronic respiratory acidosis
Obstetrics and Gynecology

• Female infertility
• Disrupted menstruation and ovulation
• Early menstruation
• Urinary incontinence
• Abnormal labor
• Increased progression to Cesarean section
• Increased fetal size
• Pre-eclampsia and eclampsia
• Gestational diabetes
Obesity and Trauma

- Premorbid risk factor
- Interference with activities of daily living, axial loads, balance issues
- Displaced ankle and elbow fractures with minimal trauma
- Less likely to wear seat belts
- Subcutaneous fat hides physical findings
Obesity and Trauma

• Head injury protection in blunt trauma
• Higher incidence chest injuries
  • Physiologic airbag
  • Rib fractures
  • Pulmonary contusions
  • Higher mortality due to respiratory causes
• Higher incidence of pelvic fractures
Prehospital Challenges

- Delays due to problems in moving and transport
- Appropriate sized gurneys
- Excessive tissue impeding access for giving fluids, taking BP
- Mobilization of manpower
- Managing airways
- Pulse oximetry
Airway

- Difficulties with intubation and BVM
- Preoxygenation is critical
  - Desaturation is quicker
  - Sitting upright or semirecumbent as long as possible
  - Reduced pulmonary compliance
    - Higher ventilatory pressures
    - May need to occlude pop-off valve to ventilate
Assessment of Airway

A

Grade 1
Grade 2
Grade 3
Grade 4

B

Class 1
Class 2
Class 3
Class 4
Class 1
Soft Palate, fauces, uvula, anterior and Posterior pillars
Class 2
Soft Palate, fauces and uvula
Class 3
Only soft palate and base of Uvula
Class 4
Hard palate only
Airway Techniques

- Rolled towels or blankets
  - between scapula
    - Displaces breast tissue
    - Chest wall can obstruct handle
  - under the occiput
    - Allows for sniffing position
    - Creates more space for the handle
- Shorter than average handle
- Adjustable angle laryngoscope
Alternate Airways

- Awake oral intubation
- Blind nasotracheal intubation
- LMA
- Esophageal-tracheal double lumen
- Cricothyrotomy
**Anticipate airway difficulty**

- Awake techniques if possible
- Pre oxygenate in reverse Trendelenburg position
- For RSI consider increased dose of meds
- LMA has increased risk for aspiration
- Neck anatomy distorted due to excess tissue
- Large tongue
- Weight of head
- Pt may be using CPAP or Bi-PAP
- Bull Neck
- Breast size
Case

- 41-year-old female feeling faint
- Neighbor called 911. The defendant city's paramedics were the first to respond at the scene. The ambulance service paramedics subsequently arrived and took over the plaintiff's care and transportation.
- Before the plaintiff was transported to the hospital, she went into cardiac arrest with both the defendant's city paramedics and ambulance service paramedics in attendance. The ambulance service paramedic intubated the plaintiff without securing the ETtube and the plaintiff was transported to the defendant hospital.
Case

- Upon arrival at the hospital, the defendant Emergency Department (ED) physician noticed that the plaintiff had a distended stomach and dusky nail beds.
- Although the ED physician apparently realized that the plaintiff had been improperly intubated, or that the ET tube had become dislodged, the plaintiff's airway was not re-established for almost 17 minutes.
- $3.6 M awarded
Key Elements to the Case

• Failure of the paramedic to assess and monitor the proper placement of the ET tube.
• Failure of the paramedic to secure the ET tube.
• Failure of the ED physician to re-intubate the patient in a timely manner.
Risk Management

- Pt with respiratory failure or arrest before being transported should have Endotracheal Intubation.
- One must ensure proper placement of the endotracheal tube.
- There are multiple methods of verification:
  - Visualize the vocal cords during intubation
  - In a perfect intubation, auscultation of the lung sounds
- Advance Life Support (ALS) providers should use both primary and secondary confirmation of endotracheal tube placement to reduce the chance of unrecognized misplacement or dislodgement.
- Use of a secondary confirmation device is particularly important in the ambulance, where movement of the patient at the scene and during transport increases the potential for unrecognized dislodgement of the endotracheal tube.
Primary Methods of Confirmation

- Direct visualization of the endotracheal tube passing through the vocal cords.
- Symmetrical chest rise.
- Auscultation at the epigastrum for the absence of gurgling sounds.
- Auscultation at the anterior and lateral chest walls for bilateral breath sounds.
Secondary Confirmation

• Pulse Oximetry - Provides a continuous means of arterial oxygen saturation

• Carbon Dioxide Detectors - End tidal carbon dioxide or a disposable colorimetric device (CO2 detector) seems to be one of the most reliable measurements to confirm appropriate ET placement.

• Esophageal Detector Devices - Syringe or bulb aspiration devices can be used to confirm tube placement. These devices, which attach to the end of the endotracheal tube, can rapidly extract air from the trachea, but would register a delay if the ET tube was in the esophagus.
**Fixing Tubes in Place**

- There are endotracheal tube stabilization devices that hold the ET tube at the correct depth and help prevent accidental extubation. Reducing the risk of tube migration is another benefit of these devices.
Sphygmomanometry

• Inadequate width and circumference can artificially elevate blood pressure
• Important to have variety of cuffs
Pulse Oximetry

- Tissue thickness impedes light wave transmission
- Other areas of placement
  - Earlobe
  - Fifth digit of hand or foot
  - Nose
  - Lip
  - Temporal artery
Venous Access

- Landmark vessels not visualized or palpated
- Multiple attempts
- Delay in access
- Higher complication rates
  - Secondary to multiple sticks
  - Wound infections
  - Phlebitis
  - Thrombosis
  - Extravasation into subcutaneous tissues
- Standard 1.5-in needles not long enough
- 3-4-in needles and catheters preferred
Improving Chances at Venous Access

- Applying heat
- Light tapping over vessels
- Active or passive pumping of extremity
- Topical nitroglycerin*
- Intraosseous
- Reactive Hyperemia
  - Occlude with BP cuff 3-4 minutes
  - Release 10-15 mmHg below diastolic
ECG Difficulties

- Difficult landmarks for lead placement
- Decreased or inconsistent voltage
- Increased fat deposits around the heart
- Flat/inverted T waves inferior leads
  - Consistent change in obesity
  - Non-specific
ECG Differences

- ECGs of 100 obese subjects and 100 normal subjects no evidence of cardiac disease
- P, QRS, and T wave axes were more leftward
- More LVH
- Left atrial abnormality and
- T wave flattening in the inferior and lateral leads
- Prolonged QT interval

- Alpert et al American Journal Cardiology 2000
EMS Challenges

• transporting people in a manner that is as safe as possible both for the personnel and their patients, as well as in a respectful manner

• 2000-2001 injuries related to transferring and handling of patients represented at least 50% of Workers’ Compensation annual costs.

• 2 or 3 people are available to move a patient from one spot to another

• Just one injury could mean the end to an EMT or paramedic’s career

• transporting people in a manner that is as safe as possible both for the personnel and their patients, as well as in a respectful manner
Meeting the Challenge

• EMS providers must conduct pre-planning exercises to prepare for attending to special situations.

• Experts advocate for the following:
  • creation of policy and procedures
  • pre-training
  • continuing education
  • request for lift assistance
  • community involvement
  • use of equipment that helps patients without harming workers.

• Even with the best intentions, treating and transporting morbidly obese patients will take more time than almost any other type of call to which EMS responds
Current Education

- EMT Paramedic Curriculum minimally covers obese patients
  - teaching that accommodations may be necessary
  - Need to use appropriately sized diagnostic devices
  - Maintain professionalism
  - Notes that the paramedic may require additional assistance
Provider Challenges

- Logistics
  - Labor intensive
  - Equipment unaccommodating
    - Securing antler must be dismantled
    - Transport from ambulance floor
  - Unsafe transports
  - Undignified transports
- Medication requirements
- Bias
Safety in equipment

• A standard box-shaped ambulance
  • 40- to 44-inch width inside of the patient compartment
  • crash tested and rated for a payload max 1600 pounds

• Patient weighing 700 pounds
  • can measure 50 to 55 inches wide
  • 2 or 3 health care providers needed to care for the patient could together weigh 600 pounds
  • Little room is left for the equipment and supplies required.
Typical Assessment Guidelines

• Paramedic unit is called to the scene to determine:
  • Patient’s condition
  • If removal is emergent/life threatening or non-emergent
  • If patient can be treated at the scene or must be moved to the hospital
Guidelines

• Removal considerations
  • How to be packaged
    • Stokes stretcher
    • Body bag
  • Method
    • Carry drag
    • Lower
    • Ropes or slings
  • Removal route to ambulance
  • Need for additional resources
    • Collapse unit
    • Forklift
    • Flatbed truck
Obstacles in Transport

- Removing the patient from the scene
- Packaging and transferring
- Moving to the ambulance
- Transportation
- Preplanning
Challenges of Removal

- Non-mobile patients
- Patients unable to fit through doorway
- Solution can be in removal of walls or windows
  - Requires heavy rescue equipment
  - Rescuers with engineering/construction experience
  - Can lead to building collapse
  - Risk of injury to patient and crew
Transferring

• **Standard backboard**
  - Patient may not fit
  - Board unable to support weight
  - **Rescuers must grasp and maintain board, lift carry and maneuver in sync**
  - Must lift from ground level to waist
  - **Restricts breathing from prolonged period of lying flat**
Various Response Methods used by EMS agencies

- Patients that are too heavy for a 2-person medic unit can request fire department support.
- MAN-S.A.C. rated at 1600 lbs.
- Heavy duty collapsible litters rated at 600 lbs.
- Dispatching trucks with additional personnel for lifting.
- Flagged address so initial responses include extra crews if available.
- Hold-harmless contracts if patient exceeds rated capacity of the stretcher.
Transferring

- Options to the standard backboard
  - Specialized backboards
  - Basket stretchers
  - Reeves stretchers
  - Warehouse style carts
Najo Sports Backboard

- 20x80"
- Hold in excess of 1,000 lbs
- Used for immobilizing large athletes
Transfer Devices

- Maxi Breakaway Flat
  - 75x30”
  - 1,000 lbs patient
  - 14 handles
  - Tilt position
Transfer Devices

- 3 sizes largest 60x80”
- 10 nylon handles supports 1,500 lbs
- Morrison Medical
Transfer Devices

- Man-Sac
- 2 sizes 7x4.5’ and 8x5’
- 1,600 lbs
- Carry low to the ground
Proflexx with LBS

- 700-1100 lbs
Stryker Models

MODEL 6083

Optional Push/Pull Handles
Ease transport in full down position. Reduces operator strain.

850 lb
all height position capacity

Patented X-Frame
Proves reliability. Damaged action during hot drops.

Pneumatic Backrest
A RUGGED innovation. Provides superior operator control.

Fibercore Mattress
Reduces mattress compression for patient comfort and ease of transfer.

Fold Down Side Rails
A RUGGED innovation. Fully operational in confined spaces.

Optimal Patient Surface
26 inch frame for greater lateral stability while providing patient comfort.

Break Away Head Section
Shortest-in-Class dimensions when folded. Maximizes maneuverability in tight areas.

Heedend cot Fastening Post
Matches existing cot fastener systems. Simplified integration into ambulance fleet.

1600 lb
lowest position capacity

Safety Bar
Assures handling confidence. Reduces lift height for smaller operators.

Optional Side Lift Handles
Provides convenient lift points for additional operators.

Oversized Wheels
Less force required to roll.

Easy-To-Use Release Handle
Low release force and short grip distances. Convenient for smaller operators.
Transferring Tips

• Treat pt with dignity
• Write protocols for safety pt and yours
• Never Hurry
• Locate obese pts before they call for help
• Assess pt size/stature and mobility before transport
• Scene assessments Doors, floors, stairs
• Vehicle placement to your advantage
• Back up plan B
• Move from bed to cot use transfer device
Lifting into the Rig

- Ramps
- Loading onto trucks
Lift to Truck
Creating Company Policy

• Address the concerns

• identifies strategies

• sets limits on how few people may attempt to move a patient over a specified weight.

• Ensure policy that personnel call for lift assistance when confronted with a patient who exceeds the lifting limits of the crew on scene.
Creating Company Policy

• Provide routine training that includes new strategies for morbidly obese patients in both emergency and non-emergency situations.

• Ensure pre-planning among responders and the community

• Remind all providers to remain non-judgmental

• Problem-solving suggestions given by providers for consideration
Company Policy

• Obtain proper equipment that is reasonably priced
  • Heavy rated stokes baskets or scoop stretchers lined with layers of blankets to be used as
    • cushion
    • additional padding to elevate the patient’s head
  • Expandable/connectable flats made from extra heavy-duty materials for the oversized patient
  • Equipment for securing the apparatus to the floor of the ambulance
  • Ramps used to slide the patient, with the least amount of lifting, during egress from a building and/or loading into and out of the ambulance
More Questions than Answers

• Is there a demand for a stretcher that could carry persons in excess of 500 lb?
• Would a larger stretcher require a larger ambulance?
• Would a larger stretcher require a different securing/locking device?
Many More Questions than Answers

• Would a larger ambulance stretcher allow enough room to provide patient care?

• Are there federal or state regulations requiring mandatory transport of the morbidly obese patient?

• What liability exposure the provider has when transporting a morbidly obese patient in an ambulance that cannot secure the transporting device to the vehicle?
Some Helpful Pointers

- Size-up building, check stairs and other escape routes
- Think outside the box
- Don’t exceed equipment ratings
- Know cot capacity and weight limits
- Appoint safety officer not working on the rescue to oversee health and safety issues
Best Practices

• Non-emergent transport
  • Ascertain patient size
  • Schedule crew appropriately
• Size up the scene
• Know patient’s weight
• Match crew capability with task
• Call for assistance before needed
More Helpful Tips

• Treat patient with dignity

• Establish a system
  • Write protocols
  • Practice runs
  • Assigned staff member to specialize in bariatric transfers

• Locate obese patients, preplan for future plans to each patient’s house

• Evaluate patient mobility prior to transport
More Helpful Tips

• Scene assessment
  • Door width
  • Steps
• Vehicle placement so terrain works in your favor
• Personnel
• Have a back-up plan
• Cot designed to hold patients specific weight
More Tips

• Make sure the Hospital can accommodate the size of the patient that you are bringing
References

• http://www.jems.com/jems/27-1/280379/
• http://enw.org/Obese.htm
• http://www.archinsurance.com/assets/pdfs/0306_intubation.pdf
• http://www.washingtonpost.com/wp-dyn/articles/A50523-2004Sep25.html
• http://www.merginet.com/index.cfm?pg=products&fn=transflat
• http://www.defrance.org/artman/publish/article_1460.shtml
References

- [http://www.turner-white.com/pdf/hp_may00_intub.pdf](http://www.turner-white.com/pdf/hp_may00_intub.pdf)
- [http://www.baylorhealth.edu/proceedings/18_3/18_3_rich.pdf](http://www.baylorhealth.edu/proceedings/18_3/18_3_rich.pdf)
- [http://www.chestjournal.org/cgi/content/full/127/4/1397](http://www.chestjournal.org/cgi/content/full/127/4/1397)
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